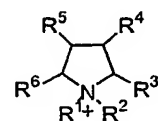
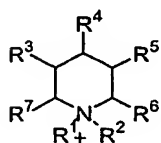
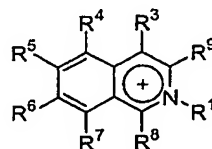
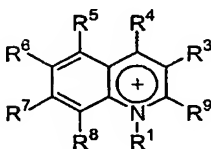
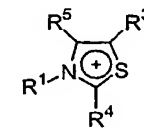
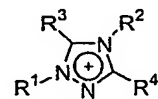
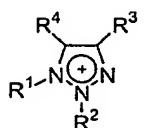
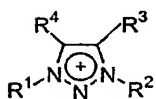
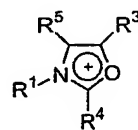
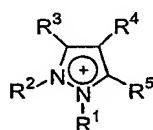
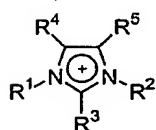
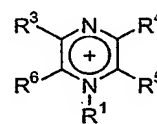
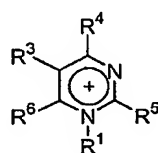
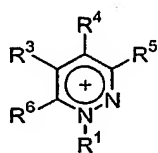
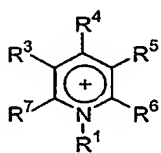


## Claims

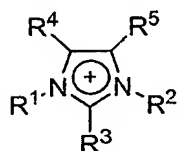
1. A method for dissolving lignocellulosic material comprising mixing the lignocellulosic material with an ionic liquid solvent under microwave irradiation and/or under pressure in the substantial absence of water to completely dissolve the lignocellulosic material.
2. The method according to claim 1 wherein microwave irradiation is applied to assist in dissolution.
3. The method according to claim 1 wherein pressure is applied to assist in dissolution.
4. The method according to claim 1 wherein the ionic liquid solvent is molten at a temperature of below 200°C.
5. The method according to claim 1 wherein the cation of the ionic liquid solvent is selected from the group consisting of



wherein  $R^1$  and  $R^2$  are independently a  $C_1$ - $C_6$  alkyl or  $C_2$ - $C_6$  alkoxyalkyl group, and  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$  are independently hydrogen, a  $C_1$ - $C_6$  alkyl,  $C_2$ - $C_6$  alkoxyalkyl or  $C_1$ - $C_6$  alkoxy group, and

wherein the anion of the ionic liquid solvent is halogen, pseudohalogen or  $C_1$ - $C_6$  carboxylate.

6. The method according to claim 5 wherein said cation comprises



wherein  $R^3 - R^5$  are hydrogen and  $R^1$  and  $R^2$  are the same or different and represent  $C_1$ - $C_6$  alkyl, and said anion is halogen, preferably chloride.

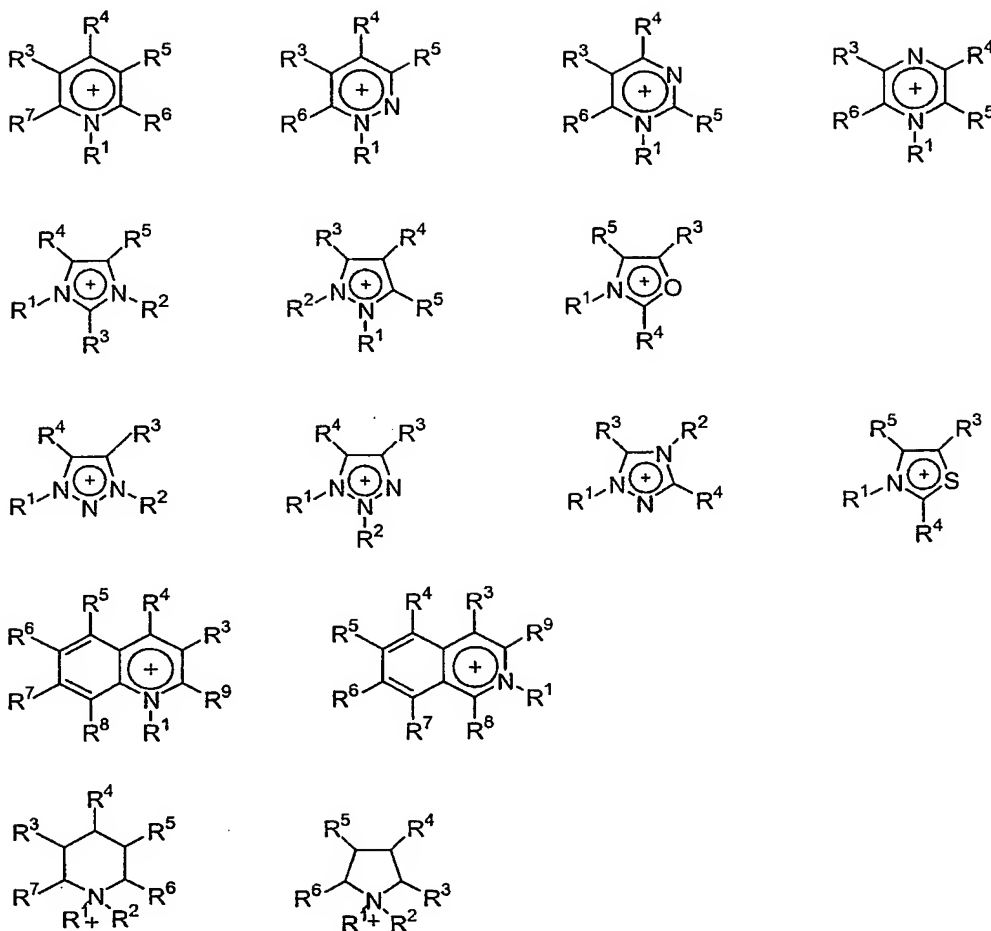
7. The method according to claim 1 wherein the lignocellulosic material is a material that has not been subjected to a pulping or defibering process.

8. The method according to claim 7 wherein the lignocellulosic material is untreated wood, such as softwood or hardwood, or untreated straw.

9. A solution comprising dissolved lignocellulosic material in an ionic liquid solvent that is substantially free of water.

10. The solution of claim 9 wherein the lignocellulosic material is present in an amount of about 1% to 30% by weight of the solution.

11. The solution according to claim 9 wherein the cation of the ionic liquid solvent is selected from the group consisting of



wherein R<sup>1</sup> and R<sup>2</sup> are independently a C<sub>1</sub>-C<sub>6</sub> alkyl or C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl group, and R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently hydrogen, a C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl or C<sub>1</sub>-C<sub>6</sub> alkoxy group, and

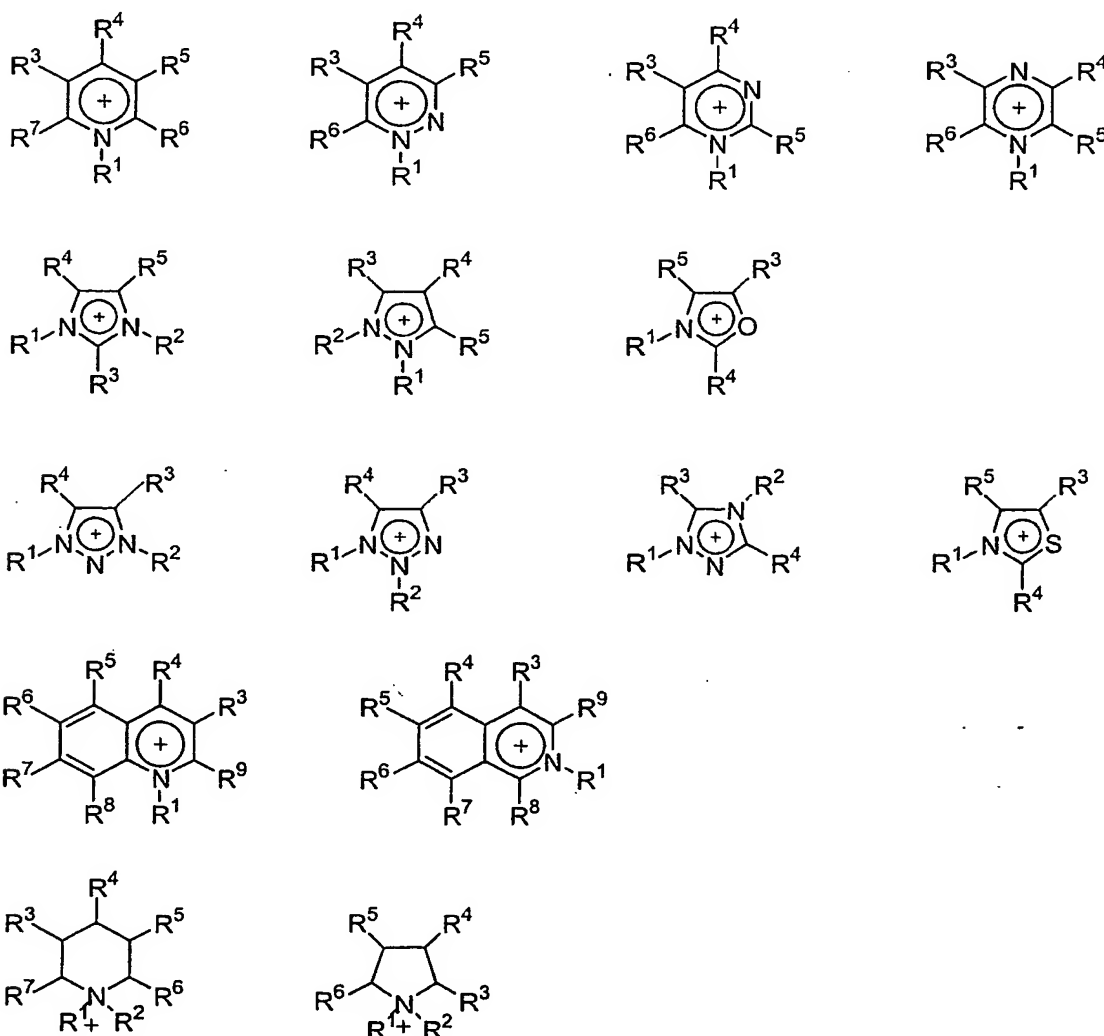
wherein the anion of the ionic liquid solvent is halogen, pseudohalogen or C<sub>1</sub>-C<sub>6</sub> carboxylate.

12. A method for separating cellulose from a lignocellulosic material comprising mixing the lignocellulosic material with an ionic liquid solvent under microwave irradiation and/or under pressure in the substantial absence of water to completely dissolve the lignocellulosic material, thereby obtaining a solution of the lignocellulosic material, and thereafter precipitating the cellulose by adding a non-solvent for the cellulose.

13. The method according to claim 12 wherein the lignin is removed from said solution before precipitating the cellulose.

14. The method according to claim 12 wherein said non-solvent for the ionic liquid solvent is water, an alcohol, a ketone or an ether.

15. The method according to claim 12 wherein the cation of the ionic liquid solvent is selected from the group consisting of

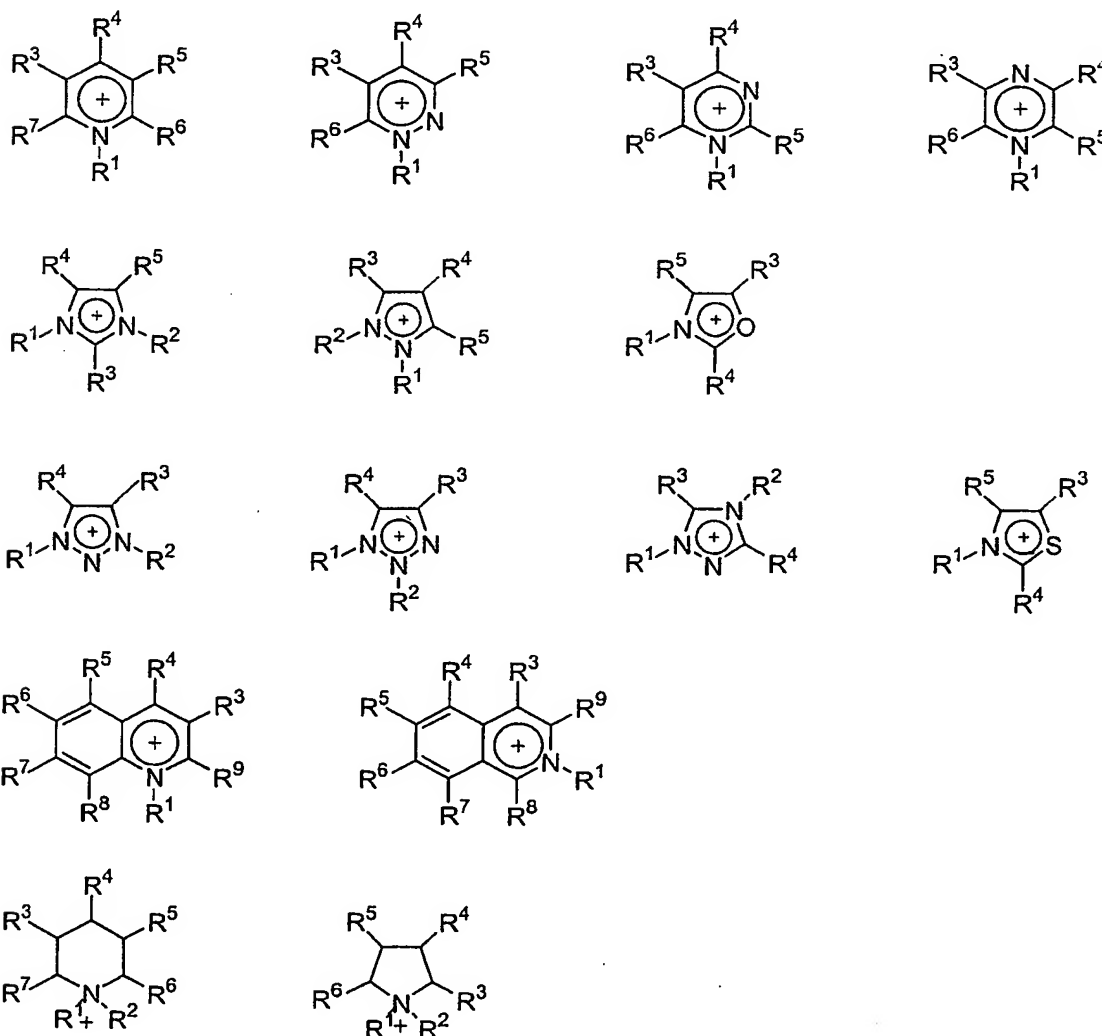


wherein R<sup>1</sup> and R<sup>2</sup> are independently a C<sub>1</sub>-C<sub>6</sub> alkyl or C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl group, and R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently hydrogen, a C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl or C<sub>1</sub>-C<sub>6</sub> alkoxy group, and

wherein the anion of the ionic liquid solvent is halogen, pseudohalogen or C<sub>1</sub>-C<sub>6</sub> carboxylate.

16. A method for the delignification of a lignocellulosic material comprising mixing the lignocellulosic material with an ionic liquid solvent under microwave irradiation and/or under pressure in the substantial absence of water to completely dissolve the lignocellulosic material, thereby obtaining a solution of the lignocellulosic material, and thereafter subjecting the solution to extraction to separate lignin from the solution.

17. The method according to claim 16 wherein the cation of the ionic liquid solvent is selected from the group consisting of



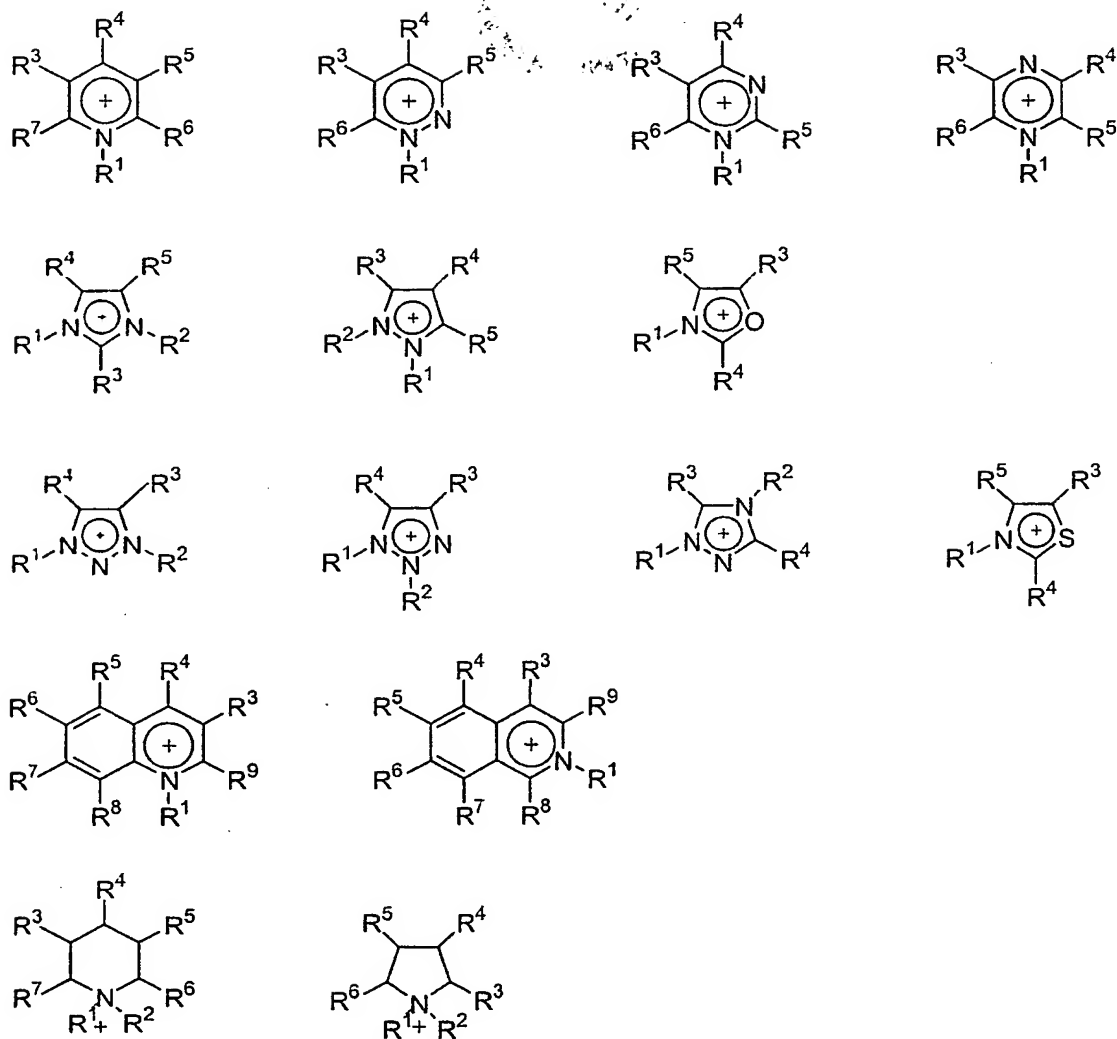
wherein  $R^1$  and  $R^2$  are independently a  $C_1$ - $C_6$  alkyl or  $C_2$ - $C_6$  alkoxyalkyl group, and  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$  are independently hydrogen, a  $C_1$ - $C_6$  alkyl,  $C_2$ - $C_6$  alkoxyalkyl or  $C_1$ - $C_6$  alkoxy group, and

wherein the anion of the ionic liquid solvent is halogen, pseudohalogen or  $C_1$ - $C_6$  carboxylate.

18. A method for the separation of extractives or a component thereof from a lignocellulosic material comprising mixing the lignocellulosic material with an ionic liquid solvent under microwave irradiation and/or under pressure in the substantial absence of water to completely dissolve the lignocellulosic material, thereby obtaining a solution of the lignocellulosic material, and thereafter separating the extractives or a component thereof from said solution.

19. The method according to claim 18 wherein the extractives or a component thereof are separated from said solution by extraction or by distillation.

20. The method according to claim 18 wherein the cation of the ionic liquid solvent is selected from the group consisting of



wherein R<sup>1</sup> and R<sup>2</sup> are independently a C<sub>1</sub>-C<sub>6</sub> alkyl or C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl group, and R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are independently hydrogen, a C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkoxyalkyl or C<sub>1</sub>-C<sub>6</sub> alkoxy group, and

wherein the anion of the ionic liquid solvent is halogen, pseudohalogen or C<sub>1</sub>-C<sub>6</sub> carboxylate.